Does higher quality primary care for people with serious mental illness affect hospital admission?

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http://www.nets.nihr.ac.uk/projects/hsdr/10101122
Background

- Serious mental illness (SMI) is a set of chronic enduring conditions – schizophrenia, psychosis or bipolar disorder
- Primary care is central in care of people with SMI
- Good quality primary care should be associated with lower unplanned admissions and more planned admissions
- Pay for performance scheme, Quality & Outcomes Framework (QOF), introduced in 2004/05
- Offers financial rewards to GP practices for good quality care
- SMI is one of the clinical domains in QOF
Research Questions

- Is better performance on SMI QOF indicators associated with:
  - lower rates of emergency admissions for SMI
  - lower rates of emergency admissions for bipolar disorder
  - lower rates of emergency admissions for physical conditions
  - higher rates of elective admissions for physical conditions
## SMI Indicators in the QOF

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>MH4</td>
<td>% patients on lithium therapy</td>
</tr>
<tr>
<td>MH5</td>
<td>% patients on lithium therapy within therapeutic range</td>
</tr>
<tr>
<td>MH6</td>
<td>% patients on the register with comprehensive care plan documented</td>
</tr>
<tr>
<td>MH9</td>
<td>% patients with SMI with health review recorded</td>
</tr>
</tbody>
</table>
Registered as SMI

Achieved (A):
MH4 (lithium record);
MH5 (in therapeutic range)

Not Achieved (NA)

Exception reported (E)

QOF achievement = \( \frac{A}{(A + NA + E)} \)

Adjusted achievement = \( \frac{A}{(A + NA)} \)
Data

• 8,500 GP practices from 2006/7-2010/11
  • Adults (18 and over)
  • Admissions for ICD-10 diagnosis SMI: F20-F31 and bipolar: F30-F31

• GP & GP practice characteristics
  • Practice list size, average age of GPs, PMS practices

• Population & area characteristics
  • Claiming incapacity benefits for MH, ethnicity, rurality

• Measures of access
  • Distance to nearest acute & MH hospital
  • Availability of Crisis Resolution and Home Treatment (CRHT) teams
  • Prevalence of NHS community psychiatric residential beds
  • Percentage of practice patients able to book an appointment within 48 hours
  • Measure of informal care provision
Methods

- Mixed effects count models that take account of nested structure of admissions in GP practices
  - Separate models for each admission type
  - Joint models for SMI (MH6 and MH9) and bipolar (MH4 and MH5)
- Sensitivity analyses
  - Number of admissions of practice patients in a year
  - Number of patients admitted at least once in a year
  - Inclusion of patients with unspecified main diagnosis to account for poor coding of diagnoses in some providers
  - Specification of QOF achievement using 10% increments of exception reporting from 0% to 100%
QOF achievement rates, 2010/11

MH4
Serum creatinine & TSH check: 1.5mlhs, 1pt

MH5
Lithium within range: 1.5mlhs, 2ptx

MH6
Comprehensive care plan documented: 8ptx

MH9
% reviewed: 1.5mlhs, 23ptx

0.95 0.83

0.76 0.81
## Admissions

<table>
<thead>
<tr>
<th>Admission type</th>
<th>Total number of admissions</th>
<th>Mean admissions per practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMI</td>
<td>136,507</td>
<td>3.5</td>
</tr>
<tr>
<td>Bipolar</td>
<td>41,372</td>
<td>1.1</td>
</tr>
<tr>
<td>Physical elective</td>
<td>128,382</td>
<td>3.3</td>
</tr>
<tr>
<td>Physical emergency</td>
<td>343,486</td>
<td>8.8</td>
</tr>
<tr>
<td>Indicator &amp; admission type</td>
<td>IRR</td>
<td>95% CI</td>
</tr>
<tr>
<td>------------------------------------</td>
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<td>---------</td>
</tr>
<tr>
<td><strong>Admissions for SMI</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MH 6</td>
<td>1.020</td>
<td>0.944</td>
</tr>
<tr>
<td>MH 9</td>
<td>1.210</td>
<td>1.104</td>
</tr>
<tr>
<td><strong>Admissions for bipolar</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MH 4</td>
<td>1.171</td>
<td>1.018</td>
</tr>
<tr>
<td>MH 5</td>
<td>1.089</td>
<td>0.994</td>
</tr>
<tr>
<td><strong>Admissions for physical elective</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MH 6</td>
<td>1.135</td>
<td>0.979</td>
</tr>
<tr>
<td>MH 9</td>
<td>1.179</td>
<td>0.969</td>
</tr>
<tr>
<td><strong>Admissions for physical emergency</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MH 6</td>
<td>1.180</td>
<td>1.087</td>
</tr>
<tr>
<td>MH 9</td>
<td>1.189</td>
<td>1.084</td>
</tr>
</tbody>
</table>
Sensitivity analyses – SMI admissions

MH6

MH9

IRR

% exceptions assumed valid

0 20 40 60 80 100

0 20 40 60 80 100

1 1.1 1.2 1.3

1 1.1 1.2 1.3
Bipolar

MH4

MH5
Physical emergency

MH6

MH9
Discussion

• Association between QOF achievement and admissions positive
• For average practice 10% increase in QOF achievement = 1.9% increase practice SMI admission rate
• Significant associations: MH9 (health check); MH4 (thyroid and renal function record); physical emergency admissions
• Not significant for elective admissions, but positive
• Results robust to sensitivity analyses for admitted at least once & inclusion of unspecified main diagnosis
Conclusions

• Results contrary to expectation
  • Higher quality of primary care, as measured by QOF may not effectively prevent need for secondary care
  • Patients may receive QOF checks post-discharge, rather than prior to admission - we do not know whether individuals who were admitted received QOF checks or not
  • SMI patients may select into practices that are better organised to provide their care, and such practices would report more QOF checks and more emergency admissions
  • Better quality primary care may be picking up unmet need for secondary care
  • The QOF measures may not reflect accurately the quality of primary care
Future research

- Patient level (rather than practice level) data on quality of primary care
  - Disentangle timing of events
  - Control for patient casemix
- Identify non-QOF measures of primary care quality that may reduce unplanned admissions more effectively and could potentially be incentivised
Any questions?

Thank you for your attention

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